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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/895,579	06/29/2001	Brian S. Doyle	42390P11362	6936

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BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD, SEVENTH FLOOR
LOS ANGELES, CA 90025

EXAMINER

NHU, DAVID

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 05/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/895,579

Examiner

David Nhu

Applicant(s)

DOYLE ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 1-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 14-18 is/are rejected.
- 7) ☐ Claim(s) 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group II (Claims 14-19) in page No.5 is acknowledge.
Claims 14-19 are remained for examination. Accordingly, claims 1-13 are withdrawn from consideration as being directed to a non-elected invention.

Specifications

Content of Specification

2. The disclosure is objected to because of the following informalities: Description of the Related Art is missing. Appropriate correction is required.

Background of the Invention: The specification should set forth the Background of the Invention in two parts:

- (a) **Field of the Invention:** A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
- (b) **Description of the Related Art:** A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 14- 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14, line 5, " **the** top of the relaxed SiGe layer " lacks a clear antecedent basis.

Claims 15, 16 are rejected due to the rejections of the parent claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Godbey et al (5,013,681) in view of Tejewani et al (5,310,451).

Regarding claim 14, see Godbey, figures 1-13, and related text on col. 1-8, which disclose a wafer 20 comprising a silicon layer 22; a relaxed SiGe layer 22 (see figure 1, col. 3, lines 12-59).

It is noted that Godbey fails to teach a strained silicon layer in contact with the relaxed SiGe layer, the strained silicon layer being transferred to a top of the relaxed SiGe layer by a heat treatment. However, Tejewani, figures 1-8, and related text on col. 1-12, (figures 1-3, col. 4, lines 54-67, col. 5, lines 1-67, col. 6, lines 1-67, col. 7, lines 1-7), also teach "a SOI structure using SiGe layer", further teach a strained silicon layer 22 in contact with the relaxed SiGe

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layer 20, the strained silicon layer being transferred to a top of the relaxed SiGe layer by a heat treatment.

It would have been obvious to one having ordinary skill in the art at the time of the present invention to apply the teachings of Tejewani into Godbey as both are related to the same subject matter of providing an improved silicon-on-insulator (SOI) fabrication process using SiGe etch stop layer.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 17, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tejewani et al (5,310,451) in view of Godbey et al (5,013,681).

Regarding claim 17, see Tejewani, figures 1-8, and related text on col. 1-12, which disclose a wafer 110 comprising a silicon layer 30; a SiO₂ layer 32 in contact with the silicon layer (see figure 2, col. 7, lines 22-43).

It is noted that Tejewani fails to teach the step of a strained silicon layer on top of the SiO₂ layer, the strained silicon layer being transferred to an oxidized wafer by a heat treatment. However, Godbey, figures 1-13, and related text on col. 1-8, (figures 1- 6, col. 3-5, lines 1-67, col. 4, lines 20-27) teach the step of a strained silicon layer 26 on top of the SiO₂ layer 29, the strained silicon layer being transferred to an oxidized wafer 30 by a heat treatment.

Regarding claim 18, (Godbey, figures 5, 6, col. 4, lines 20-27) teaches the oxidized wafer contains a relaxed SiGe layer 24.

It would have been obvious to one having ordinary skill in the art at the time of the present invention to apply the teachings of Godbey into Tejewani as both are related to the same subject matter of providing an improved silicon-on-insulator (SOI) fabrication process using SiGe etch stop process.

Allowable Subject Matter

8. Claims 15, 16, and 19 are **objected** to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 15-16 would be allowable if written to overcome the rejection under 35 U.S.C. 112 set forth in this Office Action and to include all of the limitation of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Claims 15, 16, and 19 include allowable subject matter since the prior made of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed limitations. Because Godbey (5,013,681) and Tejewani (5,310,451) taken individually or in combination, do not teach a relaxed SiGe layer contains an embrittle region; the embrittle report is created by implanting hydrogen ions.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Beyer'535 is cited as of interest.

10. A shortened statutory period for response to this action is set to expired 3 (three) months and 0 (zero) day from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see 710.02 (b)).

11. Any inquiry concerning this communication on earlier communications from the examiner should be directed to David Nhu, (703) 306- 5796. The examiner can normally be reached on Monday-Friday from 7:30 AM to 5:00 PM. The examiner's supervisor, David Nelms can be reached on (703) 308-4910.

The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

David Nhu *DN*

April 28, 2002

[Handwritten signature]